The DDT Dilemma
To Ban Or Not To Ban: That's Not The Question

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Canada and 121 other countries negotiated a landmark anti-pollution treaty in December, and bargained DDT right off the list of immediately banned poisons. The treaty is all the better for that. DDT is a widespread and pernicious menace, and must be banned completely. But not yet.

The insecticide DDT is one of the 12 nasty chemicals addressed by the new global treaty on POPs — persistent organic pollutants. The treaty, once in force, would subject most of these poisons to an immediate ban. DDT was exempted, after long argument and only for the control of malaria, until cheap, effective and safer alternatives can be developed.

Fair compromise

Notwithstanding DDT's dreadful dangers, the POPs treaty represents a fair compromise for the moment. What's needed now is well-funded research, to find better strategies against malaria and the suffering it causes.

DDT for agricultural use has been banned for years almost everywhere — and for powerful reasons. The chemical and its breakdown residues (especially one known as DDE) have done proven damage to wildlife around the world. Canada's bald eagle and peregrine falcon populations were ravaged by DDT's damage to shells and embryos. There are disturbing possibilities that DDT harms humans too — with suspected links to breast cancer, liver cancer, and disturbances to embryo development and reproduction.

Weapon of choice

Meanwhile, however, since the 1940s DDT has become the weapon of choice against malaria. It is an affordable, readily supplied and instantly lethal poison to the mosquitoes that carry the malaria-causing protozoa. DDT application, typically on the inside walls of houses where the disease is endemic, indisputably saves lives.

Some of the harms of DDT are proven. Other risks are still insufficiently understood by scientists. All are insidious: The damage can emerge years after DDT is introduced into the environment, and can appear tens of thousands of kilometres away as airborne residues migrate across hemispheres.

Unfair to the poor

Considering the known and suspected dangers to human health and the environment, it would be nice to be able to ban DDT immediately. But banning it, without providing adequate alternatives, would be ruinously unfair to those who suffer worst from malaria — the poor, in poor countries.

In fact, malaria rates are already rising. Next year alone, it is predicted, one million or more children will die of this single disease. Infection rates have increased in part because of reduced applications of DDT already, and in part because the parasitic protozoa and mosquitoes quickly develop resistance to the drugs and chemicals used against them. (This is another reason to find replacements for DDT: It can lose effectiveness as mosquitoes produce new generations resistant to the spray.) So it is true to say that DDT saves thousands of lives every year. It is also true to say that the people who contract and die of malaria are mostly poor. Cutting off supplies of DDT, without first providing safe and efficient alternatives, would count as a real blunder — and an injustice.

Transboundary pollutant

And that is our dilemma. DDT is an environmental toxic that honours no borders. Tissues of mammals in the Canadian Arctic, and of the humans who eat them, show accumulated DDT metabolites that originated with DDT sprays in the tropics. But in the malarial areas of Latin America, Africa and Asia, people desperately need DDT as a matter of life and death.

How to escape the dilemma?

Violently deadly

First, we have to rethink the supposed contradiction between environmental protection and human health. A pollutant so violently deadly to the natural environment cannot, in the end, be dismissed as benign to human animals. If only as a precaution against a terrible future outcome, we should consider human and environmental interests to be the same.

Second, we have to recognize malaria as a deeply complex interaction between the parasite as cause, the mosquitoes as vectors, and humans (we supply blood to the mosquito and our livers as breeding places for the parasite). The best anti-malaria strategies will therefore address three components: the human, the mosquito, and the environment in which the disease persists.

Alternative weapons

Sprayed on walls, DDT works by killing mosquitoes on contact. But there are alternatives — different chemicals, and different spray technologies that apply chemicals with better effect at lower quantities. In Mexico, for instance, Canadian-supported research is experimenting with chemicals called pyrethroids; new spraying techniques could bring pyrethroid costs down to DDT levels, if environmental effects can be mitigated. In Africa, success has been achieved in some communities by dipping bednets in pyrethroids — a low-cost alternative in some cases, but one that needs active community involvement.

Drugs work against malaria by killing the parasite in the human host and by creating immunity. But again, protozoa soon breed generations resistant to each new drug that comes along. And each new drug tends to carry a higher price than the one before. One promising response, now being tested, is the distribution of diagnostic "dipsticks" that detect malarial infection instantly from a drop of blood — and so direct expensive drug therapy only to those who need it. An over-arching problem here is that pharmaceutical firms are not much interested in researching new drugs when most of the would-be customers are too poor to pay.

Bacillus thuringiensis

Environmental responses to the malaria challenge have hardly been explored yet, but hold great promise. Example: A bacterium known as Bti (for *Bacillus thuringiensis var israelensis*) eats mosquito larvae in water. Easily propagated, harmless to humans and livestock, naturally occurring, Bti is altogether environment-friendly except to mosquitoes. Researchers in Peru have developed a Bti kit for village distribution. Still, cost is an obstacle to mass application.

Complex problems demand complex solutions. That's not a welcome truth to policy-makers, or to single-issue advocates for DDT abolition. All these strategies — mosquito control, drugs, environmental approaches, with community participation — need time and money to be tried and succeed. In principle, that is what the new POPs treaty provides: time, and the commitment of rich governments (including our own) to help finance the phasing out of these globally destructive pollutants. Banning DDT must be part of that effort. But not yet.

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